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10/727,926	12/04/2003	Andre Heilper	IL920030046US1	6932
7590		11/06/2007	EXAMINER	
Stephen C. Kaufman		RAH MJOO, MANUCHER		
Intellectual Property Law Dept.				
IBM Corporation		ART UNIT		
P.O. Box 218		PAPER NUMBER		
Yorktown Heights, NY 10598		2624		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/727,926

Applicant(s)

HEILPER ET AL.

Examiner

Mike Rahmjoo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. Sec. 101. Certain types of descriptive material, such as music, literature, art, photographs and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter. USPTO personnel should be prudent in applying the foregoing guidance. Nonfunctional descriptive material may be claimed in combination with other functional descriptive multi-media material on a computer-readable medium to provide the necessary functional and structural interrelationship to satisfy the requirements of 35 U.S.C. Sec. 101. The presence of the claimed nonfunctional descriptive material is not necessarily determinative of nonstatutory subject matter. For example, a computer that recognizes a particular grouping of musical notes read from memory and upon recognizing that particular sequence, causes another defined series of notes to be played, defines a functional interrelationship among that data and the computing processes performed when utilizing that data, and as such is statutory because it implements a statutory process.

Claims 1- 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 1 recites the steps of identification of one or more sequences of character codes, dividing the area of the image, applying the pattern recognition process, locating one or more of the sequences of the character codes and determining the output string which does not impart functionality to a computer or computing device (as evident through generation of character codes), and is thus considered nonfunctional descriptive material. Such nonfunctional descriptive material, in the absence of a functional interrelationship with a computer,

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does not constitute a statutory process, machine, manufacture or composition of matter and is thus non-statutory per se.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1- 22 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claim 1 applicant recites "identifying one or more sequences of the character codes that are likely to be generated due a segmentation error in application of a pattern recognition process". Examiner has carefully reviewed applicant's disclosure in its entirety and fails to see said underlined teaching as claimed. [0028] teaches "the use of the extension character codes permits the computer to correct segmentation errors simply and accurately" and [0038] teaches "the reverse transformation, such as (m.fwdarw..alpha.), may likewise have zero or low cost, to facilitate correction of segmentation errors caused by conjoining multiple characters into one" and therefore concludes that the claims contains subject matter which was not

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described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claim 2 applicant recites “associating the respective extension character code comprises assigning a respective eight-bit code that is not included in the predetermined set to replace each of the sequences”. [0035] is the only portion of the disclosure which recites “Existing string matching engines may be used at this step with only minor modifications, or with no modification at all as long as the character codes of the extension characters have the same sort of binary representation (for example, as eight bit binary numbers) as do the ordinary character codes generated by the OCR engine”. Examiner fails to see said underlined portion as claim and therefore claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As per claim 17 applicant recites “computer software product for encoding characters appearing in an area of an image to generate a corresponding output string of character codes, the product comprising a computer-readable medium in which program instructions are stored, which instructions, when read by a computer, cause the computer to...”. Examiner fails to see the underlined portions as claimed throughout the detailed section of the specification and therefore claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1- 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 1 line 5 applicant recites "...codes that are likely to be generated...". It is unclear how said criteria of "likeness" is decided. There is no definite grounds for said code generation.

Claims 9 and 17 have similar rejections.

Claims 2- 8, 10- 16 and 18- 22 are indefinite because they depend on indefinite antecedent claims.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1,2,5,8-10,12-13,16-18,20-21,24 are rejected under 35 U.S.C. 102(b) as being anticipated by Kagehiro et al (US Patent 6246794), hereinafter, Kagehiro.

As per claims 1, 9 and 17, and as to the broadest reasonable interpretation by examiner, Kagehiro teaches a memory (see for example fig. 3 block 313), which is arranged to hold a directory of known strings;

at least one processor (see for example fig. 3 block 307) identifying one or more sequences of the character codes that are likely to be generated due a segmentation error in application of a pattern recognition process, and associating a respective extension character code with each of the sequences corresponding to for example fig. 20 field 2001 of the profile pattern in a chain code (corresponding to one or more sequences of character codes) and field 2004 for the candidate character (corresponding to extension character code) see for example fig. 2 and col. 15 lines 3-21. Fig. 23 lists types of segmentation errors of fig. 22;

dividing the area of the image into segments such that each segment contains approximately one character corresponding to for example fig. 2 and fig. 19;

applying the pattern recognition process to each of the segments in order to generate an input string of character codes, the input string comprising a respective character code for each of the segments corresponding to for example the character classification process 174 classifies each tentative character pattern (corresponding to pattern recognition) and produces multiple candidate character species codes (corresponding to character codes) and the similarity of the tentative character pattern and candidate character (corresponding to extension character) see for example fig. 2 and col. 14 lines 10- 30;

locating at least one of the sequences of the character codes in the input string, and replacing the at least one of the sequences with the respective extension character code so as to generate a modified string corresponding to for example the abstract, fig. 2 and col. 7 Lines 40- 50 wherein a tentative character pattern in the pattern table 219 is selected again based on the credibility to override the previous selection (corresponding to replacement), the determination of character segmentation takes place to override the previous determination to have only the street number different from the tentative character pattern selected at the tentative pattern determination 209; and determining the output string by comparing the modified string to a directory (corresponding to pattern table 219) of known strings corresponding to for example the abstract, fig. 2 step 218 and col. 4 lines 40 55.

As per claims 2, 10, 18 and in light of the rejections made earlier, Kagehiro inherently teaches the character codes that are generated by the pattern recognition process are selected from a predetermined set of eight-bit codes (corresponding to each character inherently as a eight bit code which is located in character classification via pattern table), and wherein associating the respective extension character code comprises assigning a respective eight-bit code that is not included in the predetermined set to replace each of the sequences see for example fig. 2.

As per claims 4, 12, 20 Kagehiro teaches determining the output string comprises finding an approximate match between the modified string and one of the known strings, and outputting the one of the known strings see for example fig. 2 and in particular steps 217- 218.



As per claims 5, 13, 21 Kagehiro teaches finding the approximate match comprises computing respective edit distances between the modified string and a plurality of the known strings, and selecting the one of the known strings responsively to the respective edit distances see for example fig. 7 step 702 with distance as a factor. Fig. 19 also shows the gap (corresponding to the distance between the boundaries as well as the gap in between two boundaries e.g., 195).

Claims 8, 16, 24 are substantially similar to rejections made above and is therefore rejected using the same rational.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3, 6- 7, 11, 14- 15, 19, 22- 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kagehiro in view of Andersen et al (US Patent 7240062), hereinafter, Andersen.

As per claims 3, 11, 19 Kagehiro does not teach applying OCR.

However, Andersen teaches applying the pattern recognition process comprises applying optical character recognition (OCR) corresponding to for example fig. 1 system 100.

It would have been made obvious to one of ordinary skilled in the art at the time the invention was made to incorporate the teachings of Andersen into Kagehiro to implement multiple recognition engines which are used to recognize each word in the document thus generally increasing overall recognition accuracy, since the recognition engines typically use different OCR techniques, each having different strengths and weaknesses and therefore provide an efficient and state of the art device see for example col. 1 lines 35- 45.

As per claims 6, 14, 22 and in light of rejections made (e.g., claim 5) Andersen teaches computing the respective edit distances comprises determining respective costs of edit operations involving the extension character code, and applying the respective costs in computing the respective edit distances corresponding to for example the probabilities or the likelihoods in col. 5 lines 1- 15. Kagehiro also teaches corresponding calculations related to confidence degree see for example the drawings and in particular fig. 2, 7, 10, and 17.

As per claims 7, 15, 23 Andersen teaches each of the one or more sequences of the character codes is generated due to incorrect segmentation of a respective original character having a respective original character code, and wherein determining the respective costs comprises assigning a cost of zero to a transformation of the respective extension character code associated with each of the sequences to the respective original character code see for example col. 4 lines 53- 67 through col. 5 lines 1- 15 wherein calculations of the probabilities (corresponding to cost) are made.

### **Inquiry**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Rahmjoo whose telephone number is 571-272-7789. The examiner can normally be reached on 8 AM- 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Bella can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Rahmjoo



October 30, 2007